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Published in:
Journal of Applied Psychology

DOI:
[10.1037/0021-9010.92.1.250](https://doi.org/10.1037/0021-9010.92.1.250)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2007

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Thau, S., Aquino, K., & Wittek, R. (2007). An extension of uncertainty management theory to the self: The relationship between justice, social comparison orientation, and antisocial work behaviors. *Journal of Applied Psychology*, 92(1), 250-258. <https://doi.org/10.1037/0021-9010.92.1.250>

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An Extension of Uncertainty Management Theory to the Self: The Relationship Between Justice, Social Comparison Orientation, and Antisocial Work Behaviors

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A multisource field study of 103 employees and their supervisors tested an extension of uncertainty management theory (E. A. Lind & K. Van den Bos, 2002; K. Van den Bos & E. A. Lind, 2002). According to this theory, persons high in social comparison orientation (F. X. Gibbons & B. P. Buunk, 1999) experience chronic uncertainty about the self. It was hypothesized that this should strengthen the effects of interactional and procedural justice perceptions on antisocial work behaviors. As predicted, the negative relationship between employee perceptions of interactional justice and supervisory ratings of antisocial work behaviors was stronger for people who are high as compared with low in social comparison orientation. Results provide evidence for an extension of uncertainty management theory to the self-domain.

Keywords: antisocial work behaviors, uncertainty management theory, justice, social comparison orientation, interpersonal mistreatment

Many studies have shown that when employees are treated unjustly they are more likely to exhibit behaviors that harm the organization or its members (e.g., Ambrose, Seabright, & Schminke, 2002; Aquino, Galperin, & Bennett, 2004; Aquino, Lewis, & Bradfield, 1999; Skarlicki & Folger, 1997). One of the most often invoked theoretical explanations for these findings is that employees view their relationships with the organization and its authorities as social exchanges (e.g., Folger & Konovsky, 1989; Masterson, Lewis, Goldman, & Taylor, 2000). Because the fear of exploitation and nonreciprocity is the fundamental problem in social exchange relationships (Molm & Cook, 1995), if organizations and their authorities treat employees fairly, then one possible consequence is that these concerns are mitigated, and employees feel more obligated to exhibit positive behaviors and refrain from exhibiting negative ones (Konovsky & Pugh, 1994). Although social exchange-based explanations (e.g., Cohen-Charash & Spector, 2001; Konovsky & Pugh, 1994; Settoon, Bennett, & Liden, 1996) of employee behavior have been well supported by data, a limitation of current social exchange theories is that they do not specify the conditions under which fairness concerns may become more or less important for employees. In other words, these

models assume that such perceptions are equally salient to most employees, which may or may not be true.

An alternative model that specifies when fairness judgments should affect work behaviors is uncertainty management theory (UMT; see Lind & Van den Bos, 2002; Van den Bos & Lind, 2002, for overviews). According to UMT, people rely on fairness information most when they are confronted with uncertainty. For example, the opportunity to voice one's opinion in a decision process has been shown to have a stronger impact on satisfaction judgments about an authority when people are uncertain about the trustworthiness of that authority (Van den Bos, Wilke, & Lind, 1998). The impact of uncertainty on the well-known *fair process effect* can also be extended to the self-domain. For example, the positive effect of fair procedures on measures of affect was found to be stronger when people were reminded of their own death (Van den Bos & Miedema, 2000) or when they had to remember situations in which they felt uncertain about themselves (Van den Bos, 2001a) than for people who were not confronted with self-uncertainty.

Past studies of UMT show that under conditions of uncertainty, fairness judgments have a stronger impact on a variety of outcomes, such as litigation claims (Lind, Greenberg, Scott, & Welchans, 2000), positive and negative affect (Van den Bos, 2001b, Van den Bos & Miedema, 2000;), and worldview defenses (Van den Bos, Poortvliet, Maas, Miedema, & Van den Ham, 2005). What these studies have not examined, though, is whether a chronic and relatively stable experience of self-uncertainty might make fairness information more salient to certain people across situations. As a result, it may be that fairness judgments are better predictors of certain workplace behaviors for some persons than others as a function of a dispositional tendency to experience high

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We thank Tom Snijders for advice with data analysis.

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levels of self-uncertainty. This idea is supported by recent experimental findings showing that people experiencing high chronic self-uncertainty react strongly to variations in procedural justice manipulations (De Cremer & Sedikides, 2005). Although experimental studies (see Lind & Van den Bos, 2002; Van den Bos & Lind, 2002, for overviews) provide evidence for stronger fair process effects in the presence of uncertainty, no studies have tested whether chronic self-uncertainty impacts relationships between fairness judgments and workplace behavior. The present study was conducted to address this gap in the organizational behavior literature and to extend our understanding of how social comparison processes might influence the impact of fairness judgments on employee behavior.

One goal of this study was to extend UMT to the self-domain by using it to predict workplace behavior in a field setting. Building on the tenets of UMT (Lind & Van den Bos, 2002; Van den Bos & Lind, 2002), we hypothesized that some persons experience chronic uncertainty with respect to the self in relation to others, a dispositional tendency that is captured by the construct of *social comparison orientation* (Gibbons & Buunk, 1999). This prediction is consistent with Festinger's (1954) argument that a person's tendency to make social comparisons is influenced by the person's relative certainty. We expected people who experience chronic self-uncertainty to make more frequent social comparisons than those who experience less self-uncertainty. In turn, the workplace behaviors of the former will be more strongly influenced by justice concerns than those of the latter. On the basis of this argument, we hypothesized that people high in social comparison orientation will be more likely than those who are low on this tendency to exhibit antisocial workplace behaviors when they perceive themselves as being treated unfairly. To our knowledge, this hypothesis has not been previously tested, and so a goal of our study was to assess the generalizability of UMT by testing whether its predictions apply to cases in which persons have a predisposition to experience chronic uncertainty (De Cremer & Sedikides, 2005). Another goal of our study was to advance our understanding of a relatively new construct—social comparison orientation—by exploring its influence on organizational behavior (Buunk, Zurriaga, Gonzalez-Roma, & Subirats, 2003). Finally, the results of our study suggest some possible boundary conditions for the well-established empirical relationship between justice perceptions and antisocial work behavior (Ambrose et al., 2002; Aquino et al., 1999, 2004; Skarlicki & Folger, 1997).

In the following sections, we introduce UMT and show how the theory can be extended into the self-domain (De Cremer & Sedikides, 2005). We then describe how social comparison orientation reflects a chronic uncertainty about the self (Gibbons & Buunk, 1999) and explain how this dispositional tendency might moderate the relationship between justice perceptions and antisocial work behaviors. Finally, we present an empirical test of our arguments.

Justice Perceptions and Employee Behavior

Research in the uncertainty management and group value theory tradition has suggested that two facets of justice—procedural and interactional—are particularly relevant to employees. These types of justice have been found to be more strongly related to reactions to both the organization and the supervisor than is distributive justice (see Cropanzano, Prehar, & Chen, 2002, for an overview).

The reason why employees appear to be more impacted by these justice aspects and not by outcome concerns is that such information is more salient and readily understandable to them than is information about outcomes (Cropanzano et al., 2002). Consequently, these two forms of justice are the foci of our study.

Formal procedures are the principal mechanisms by which modern organizations attempt to promote just outcomes (Lind & Tyler, 1988). It follows from this functional view of procedures that if employees believe that organizational procedures are fairly implemented, they will be more confident that their interests will generally be protected by the organization over time. However, if procedures are unfairly implemented, then their confidence in the effectiveness of formal procedures can be undermined. Thus, employees who perceive organizational procedures to be fair should exhibit more positive (and less negative) behaviors toward the organization and its members because they are less likely to believe that the organization or other employees will be able to exploit or abuse them without incurring some kind of punishment (Aquino, Tripp, & Bies, 2006; Konovsky & Pugh, 1994). There is another function of fair procedures, though, that would lead to the same outcome.

According to Tyler and Lind's (1992) relational model of procedural justice, fair procedures affect relational bonds among people and group authorities (e.g., supervisors, managers). Fair procedures convey status to members of an organization by communicating to the employees that "if we treat you fairly, we must care about you or respect you." Tyler (1999) argued that when a person evaluates his or her organization favorably, he or she is motivated to maintain positive social bonds with other organizational members. However, when procedures are perceived as unfair, the relational model implies that people may care less about their fellow employees and may be more willing to exhibit negative interpersonal behaviors toward them because their relational bonds are weak.

A closely related fairness perception that may have a similar effect involves judgments about the quality of treatment an employee receives from organizational authorities. This fairness perception has been referred to as interactional justice (Bies & Moag, 1986). Interactional justice has been shown in many studies to be a reliable predictor of many kinds of workplace behaviors, including those that can harm individuals and organizations (e.g., Ambrose et al., 2002; Aquino et al., 1999, 2004). This is not surprising because people are extremely sensitive to the treatment they receive from others (Cahn, 1964; Darwin, 1872; Steele, 1988).

In organizations, harsh, unethical, or disrespectful behavior directed against an employee by an authority often produces strong feelings of anger and moral outrage because such treatment signals how much (or how little) the employee is valued and respected by the organization (Bies, 2001; Bies & Moag, 1986). Like procedural violations, violations of interactional justice can lead people to direct harmful actions against the organization and others because interpersonal mistreatment is an indicator of a person's social status and belonging within the organization (Tyler, 1999). As suggested by research on the relationship between frustration and displaced aggression, victims of mistreatment can either directly (against persons) or indirectly (against the organization) retaliate against the source of the injustice (see Marcus-Newhall, Pedersen, Carlson, & Miller, 2000, for an overview). Again, these findings can be explained by applying a social exchange framework in which treatment by an authority is viewed by an employee as a

currency of exchange; when this treatment is negative, the employee is less likely to exhibit behaviors that benefit the organization.

The arguments just presented have been made before and provide the theoretical basis for predicting direct relationships between procedural and interaction fairness judgments and work behavior. However, the hypothesis we tested in this study is that these judgments will be more important for employees who are high rather than low in chronic self-uncertainty. To explain why this might be so, we turn to UMT.

UMT

According to UMT, one function of fairness is to reduce uncertainty in people's lives (Lind & Van den Bos, 2002; Van den Bos & Lind, 2002). The need for predictability and uncertainty reduction is possibly innate, which leads to the idea that uncertainty avoidance is fundamental in any social sphere (Hogan, 1983). Fairness information is an environmental cue that can help reduce uncertainty because it either increases or decreases employees' fears of being exploited in a social exchange (Lind & Van den Bos, 2002). Consequently, people experiencing high uncertainty should be motivated to direct more of their attention to fairness cues in their environment than should people who experience lower uncertainty. In other words, fairness information becomes more salient to people experiencing high uncertainty than to people experiencing low uncertainty and as a result, this information is more likely to impact workplace behaviors of high-uncertainty people.

Lind and Van den Bos (2002) suggested that when uncertainty is linked to fairness, people are less likely to engage in behaviors that harm the interests of the organization and their members. This is perhaps the most striking prediction of UMT—that fairness will matter more for employee behavior when people are experiencing uncertainty. The reason is that fairness reduces anxiety, worries, and doubts about being exploited. As a result, employees are able to maintain a positive attitude toward the organizational relationship and are more motivated to refrain from behaviors that harm the organization or its members. Conversely, people are more likely to engage in antisocial behaviors when they feel unfairly treated and are uncertain. Lind and Van den Bos stated that “when treatment is unfair or perhaps when even moderate levels of unfairness are particularly threatening in the face of great uncertainty, that negative affect drives people to frankly competitive actions in which harming the organization is as much as a goal as protecting the self” (p. 196).

According to UMT, the source of uncertainty can be either environmental or self-imposed (Van den Bos, 2001a, 2001b). For example, employees may undergo environmental uncertainty when they are laid off and they do not know whether they will be able to find a new job. Consistent with this idea, Lind and colleagues (2000) showed that fair treatment during job termination has a stronger negative impact on considering a litigation claim than does fair treatment during the course of employment. However, there is evidence that people often experience self-related uncertainties and that these uncertainties moderate their responsiveness to justice (De Cremer & Sedikides, 2005). According to this view, people may be uncertain in any relevant self-domain (Baumeister, 1998). For example, people can be uncertain about aspects of their personal self (e.g., “Am I competent?”), their interpersonal self

(e.g., “Am I loved?”), and their physical self (e.g., “Am I muscular?”). This argument begs the question of whether the predictions made in UMT generalize to people who experience chronic self-uncertainty. A variable that has been shown to capture a person's chronic level of self-uncertainty is social comparison orientation.

Social Comparison Orientation

According to social comparison theory (Festinger, 1954), people who are uncertain about themselves have a stronger motivation to evaluate their opinions, attitudes, and behaviors with respect to others (Gibbons & Buunk, 1999; Taylor, Buunk, & Aspinwall, 1990). Although the majority of research has understood social comparisons as driven by situational factors (see Mussweiler, 2003, for an overview), some people are more and others less likely to compare themselves with others across different social domains (Gilbert, Giesler, & Morris, 1995; Steil & Hay, 1997). This observation led Gibbons and Buunk (1999) to propose that people who are chronically uncertain about aspects of the self constantly engage in social comparisons to increase self-understanding. Individual differences in this tendency are captured by the construct of social comparison orientation. A person high in social comparison orientation is “sensitive to the behavior of others and has a degree of uncertainty about the self, along with an interest in reducing self-uncertainty” (Gibbons & Buunk, 1999, p. 138). This does not imply, however, that this tendency necessarily reduces self-uncertainty. Rather, the process of constantly comparing one's self with others may be an expression of a deeper, more fundamental uncertainty about the self (Gibbons & Buunk, 1999). Supporting their argument, Gibbons and Buunk found that social comparison orientation was negatively correlated to self-esteem and positively related to social anxiety, neuroticism, and depression. Although social comparison orientation is positively related to this complex of negative cognitions and affect, studies show that social comparison orientation shares only a moderate correlation with neuroticism (Gibbons & Buunk, 1999). Moreover, social comparison orientation and neuroticism have independent effects on a variety of outcomes and distinct effects in response to comparison information (Buunk, Nauta, & Molleman, 2005; Buunk, Van der Zee, & Van Yperen, 2001; Van der Zee, Oldersma, Buunk, & Bos, 1998). These findings indicate that social comparison orientation and neuroticism are not identical constructs.

Indirect support for the idea that social comparison orientation can amplify the impact of environmental cues on affective and behavioral reactions was provided by Pfeffer, Salancik, and Leblebici's (1976) study showing that uncertainty in decision situations increases social comparisons, which, in turn, increase the use of particularistic criteria in organizational decision making. One could argue that an example of a particularistic criterion in social exchanges is the perception of fair treatment. If this is true, it may be argued that people who are predisposed to make frequent social comparisons also react more strongly to fairness information than those who make less frequent comparisons. Direct support for this argument is provided by a study showing that cancer patients high in social comparison orientation react with stronger emotions to information about other patients (Van der Zee et al., 1998). Furthermore, the impact of downward comparisons on relationship distress is magnified when people are high rather than low in social comparison orientation (Buunk, Oldersma, & De Dreu, 2001).

Integrating the construct of social comparison orientation with the tenets of UMT, we hypothesized that justice perceptions will exert a stronger impact on work behaviors of employees who are prone to make frequent social comparisons compared with work behaviors of employees who make less frequent comparisons. The reason is that people who exhibit this tendency are more likely to experience a fundamental uncertainty about the self (Gibbons & Buunk, 1999). The motivation to reduce uncertainty will then lead them to focus more of their attention on fairness information than on other kinds of information (e.g., performance feedback) to evaluate their standing relative to others (Tyler & Lind, 1992). As a result, perceptions of fairness will be more salient to them and the impact of these perceptions on work behavior stronger, compared with people who experience low chronic self-uncertainty. The following hypotheses test these arguments:

Hypothesis 1: The negative relationship between perceptions of procedural justice and antisocial work behaviors is stronger for people who are high as compared with low in social comparison orientation.

Hypothesis 2: The negative relationship between perceptions of interactional justice and antisocial work behaviors is stronger for people who are high as compared with low in social comparison orientation.

Method

Participants and Procedure

A two-part survey of employees and their supervisors was used to examine relationships among procedural and interactional justice, social comparison orientation, and antisocial work behavior in a Dutch health care organization. The organization provides on- and off-site health care services for older people and is organized in work groups. Part 1 was a survey distributed to employees that assessed self-reported interactional and procedural justice, social comparison orientation, and relevant control variables. We mailed this survey to employees' home addresses, along with a stamped envelope addressed to the researchers. In a personalized and signed letter, we assured confidentiality of all responses and stated that the primary purpose of the survey was research related and meant to understand employee experiences at work. Both the organizations' union and the board of directors expressed their support of this research in a company newsletter prior to data collection. From a total of 318 randomly selected employees, 129 employees responded, for a response rate of 41%. In Part 2, we mailed a survey to employees' direct supervisors to collect an observer-reported measure of antisocial work behaviors. For a total of 318 employees, we received 264 complete ratings, for a response rate of 83%. These data were provided by 27 supervisors (who rated, on average, 9.78 employees). There were 3 supervisors of the organization who did not respond to our survey. Matched data for hypotheses tests were available for 103 employees, provided by 25 different supervisors (averaging 4.12 employees per supervisor group). From this sample, the respondents' ages ranged from 23 to 59 years ($M = 40.64$, $SD = 9.33$). Their organizational tenure ranged from 0 to 31 years ($M = 9.95$, $SD = 7.51$).

Measures

Interactional justice. We measured interactional justice with six items (Moorman, 1991). Sample items included the following: "My supervisor treats me in a friendly manner" and "My supervisor considers my opinions." Respondents answered these items on 5-point Likert scales (1 =

strongly disagree, 5 = *strongly agree*). Items were averaged to form a scale ($\alpha = .88$).

Procedural justice. Because the organization we studied underwent an organizational change initiative, we adapted five items of Moorman's (1991) procedural justice scale to measure perceptions of justice about the change initiative. The organization aimed to change its entire array of health care services (both on site and off site) from a supply-based to a demand-based model of health care. That meant that health care and home maintenance would be provided when patients asked for it rather than according to a schedule set by health care employees. No layoffs were connected to this change. The organization announced the change in the organizational newsletter, group meetings, and letters to the employees. We then asked employees to what extent they agreed or disagreed over statements about the change procedure. A sample item was: "Formal procedures are designed to provide useful feedback regarding the decision and its implementation." Answers were given on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*) and then averaged to a scale ($\alpha = .85$).

Social comparison orientation. We assessed this construct with the 11-item scale of social comparison orientation developed by Gibbons and Buunk (1999). This scale measured the extent to which people make comparisons about their opinions, abilities, and general aspects of their selves. Sample items included the following: "I always pay a lot of attention to how I do things compared with how others do things," "I am not the type of person who compares often with others [reversed]," "I always like to know what others in a similar situation would do," and "I never consider my situation in life relative to that of other people [reversed]." Items were recoded and averaged such that high scores indicate a greater tendency for social comparisons ($\alpha = .77$). Respondents answered these items on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*).

Antisocial work behaviors. We asked supervisors to rate their employees' antisocial work behaviors with eight items used in previous research (Aquino & Douglas, 2003; Bennett & Robinson, 2000). Items were as follows: (This employee) "cursed at someone at work," "publicly blamed someone," "made fun of someone at work," "took home organizational property without consent," "called in sick but has probably not been sick," "took an additional or longer break than is acceptable in this organization," "comes in late without consent," and "has neglected to follow my instructions." Answers were provided by supervisors on a 7-point Likert scale (1 = *never*, 7 = *always*) and were averaged ($\alpha = .80$).

Control variables. We controlled for several variables that may have affected the relationship among our study variables but that were not of direct theoretical interest. We mentioned earlier that we focused primarily on perceptions of procedural and interactional justice as predictors. However, we wanted to control for possible effects of distributive justice perceptions as a possible source of variation in the dependent measure. We used four Likert-type items (1 = *strongly disagree*, 5 = *strongly agree*) to assess this construct (Moorman, 1991). Sample items were as follows: "I am rewarded fairly, considering my experience" and "I am rewarded fairly, considering my responsibilities" ($\alpha = .92$). We also controlled for trust in organization, which has been shown to be related both to fairness judgments and cooperation at work (Dirks & Ferrin, 2001). Further, trust in organization captures relational uncertainty with respect to the employee-organization relationship (Van den Bos et al., 1998). We aimed to evaluate our hypothesis about self-related uncertainty on constant levels of this variable. We measured this construct with Robinson's (1996) seven-item measure of trust in organization on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*, $\alpha = .82$). Sample items were "I believe my employer has high integrity," and "My employer is open and upfront with me." Next, we controlled for *perceived work group cohesion* (Koys & DeCotiis, 1991) because lower levels of coworker belonging may reflect relational uncertainty, as people in cohesive relationships are confident about reciprocity and trust of their partners (Lawler & Yoon, 1996). Answers were given on a 5-point scale (1 = *strongly disagree*, 5 =

strongly agree, $\alpha = .88$).¹ Sample items were as follows: "There is a lot of team spirit among people in this group" and "I feel like I have a lot in common with the people I know in this group." Finally, we controlled for employee tenure and age. This information was obtained via company records. Because the employees we studied worked in groups that were either organized in low or high degrees of interdependence, we also controlled for work group structure (0 = low interdependence in off-site work groups, 1 = high interdependence in on-site work groups).

Results

Analysis

We used the linear mixed effects program *xtmixed* in STATA 9.0 (StataCorp, 2005) to estimate multilevel regression models. Multilevel regression analysis statistically models both within-groups as well as between-groups relations (Bryk & Raudenbush, 1992; Snijders & Bosker, 1999). Unlike ordinary least squares regression, multilevel analysis considers statistical dependencies of observations within groups and differences across groups and therefore provides less biased estimates for standard errors of regression coefficients. We estimated a two-level model with employees nested within groups defined by supervisor units, using maximum likelihood estimation. We reported fixed effects (gammas) analogous to regression coefficients. To evaluate whether each study variable significantly added to the explanation of antisocial work behaviors, we calculated likelihood ratio tests. Likelihood ratio tests determine whether model fit (as defined by log-likelihood values) of a model with more parameters is significantly better than one with less parameters. We also computed the proportional reduction of prediction error when predictors were added to the model, which is analogous to effect sizes or R^2 in multiple regression analysis (Snijders & Bosker, 1999). We minimized multicollinearity among our predictors by centering the independent variables prior to creating interaction terms (Aiken & West, 1991). To estimate meaningful intercept values for simple slope plots, we also centered all control variables (except dummies) prior to analysis. Descriptive statistics and correlations among the study variables are shown in Table 1.

Nonresponse Analysis

We explored the possibility that respondents who did not provide self-reports differed from those who did in their performance of antisocial work behaviors. We dummy coded respondents who had no missing values in all self-reported variables and supervisory ratings as 0. Respondents who did not provide self-reports but were rated by supervisors in antisocial work behaviors were coded as 1. We then conducted an analysis of variance with antisocial work behaviors as the dependent variable and the dummy code as the independent variable. Results revealed no significant differences between groups in antisocial work behaviors, $F(1, 258) = 0.13$, *ns*. We also examined whether respondents differed from nonrespondents on demographic characteristics (gender, age, and tenure). There were no significant differences in gender or age between respondents and nonrespondents. However, respondents had longer tenure ($M = 9.58$, $SD = 7.22$) than nonrespondents ($M = 6.83$, $SD = 7.19$), $F(1, 298) = 10.72$, $p < .01$.

Hypotheses Tests

Table 2 shows the results of the hypotheses tests. The Procedural Justice \times Social Comparison Orientation interaction effect

on antisocial work behaviors was not significant, ($\gamma = .01$, $z = .07$, *ns*), thus failing to support Hypothesis 1. However, we found a significant Interactional Justice \times Social Comparison Orientation interaction effect on antisocial work behaviors ($\gamma = -.12$, $z = -2.03$, $p < .05$). Moreover, the model containing this interaction has a significantly better fit than the model without the interaction, likelihood ratio χ^2 (1, $N = 103$) = 4.02, $p < .05$. The interaction term explained an additional 2% of the variance in antisocial work behaviors.²

We examined the form of the interaction by testing the relationship between interactional justice and antisocial work behaviors at high (one standard deviation above the mean) and low (one standard deviation below the mean) values of social comparison orientation (Aiken & West, 1991). This analysis revealed that the relationship between interactional justice and antisocial work behaviors was stronger and negative for persons high ($b = -.20$, $t = -3.39$, $p < .01$) rather than low ($b = -.04$, $t = -0.61$, *ns*) in social comparison orientation. The plotted interaction is shown in Figure 1. The pattern of this result supports Hypothesis 2.

Discussion

We found that the negative relationship between interactional justice and antisocial work behaviors was stronger for employees high in social comparison orientation (high chronic self-uncertainty) than for employees low in social comparison orientation (low chronic self-uncertainty). This result is consistent with the idea that the influence of fairness on antisocial employee behavior is stronger when employees experience uncertainty (Lind & Van den Bos, 2002). However, there was no effect of the interaction of procedural justice associated with change-related procedures and social comparison orientation on antisocial work behaviors.

A contribution of the study is that it lends support to an emerging body of research suggesting that people use fairness information to reduce uncertainty (De Cremer & Sedikides, 2005; Lind & Van den Bos, 2002; Van den Bos & Lind, 2002). The novel finding that has not previously been shown is that the actual work behavior of employees (as reported by others) is more strongly related to perceptions of interactional justice when they are predisposed to make frequent social comparisons. This tendency captures a chronic feeling of uncertainty about the personal and interpersonal self (Baumeister, 1998). Our results are consistent with previous studies of the social comparison orientation construct because they

¹ We conducted an additional analysis to investigate the possibility that work-group cohesion should be considered as a group-level control variable instead of an individual-level control variable. To this end, we conducted a random effects ANOVA with groups as an independent variable and cohesion as a dependent variable. The results of this analysis revealed that there were significant between-group differences in cohesion, $F(30, 98) = 1.69$, $p < .05$ and that the variation in cohesion explained by the group variable was $r = .15$. However, including this variable as a group-level covariate instead of an individual-level covariate did not change the pattern and significance of the interaction between interactional justice and social comparison orientation ($\gamma = -.14$, $z = -2.33$, $p < .05$).

² It is notable that although 2% explained variance may be considered to be small, Evans (1985) argued that in field studies, interactions explaining 1% of variance should be considered important.

Table 1
Means, Standard Deviations, and Zero-Order Correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Work group structure	0.65	0.48	—									
2. Employee age (years)	40.64	9.33	.07	—								
3. Employee tenure (years)	9.95	7.51	.29**	.29**	—							
4. Trust in organization	3.56	0.81	.13	.14	-.15	(.82)	—					
5. Workgroup cohesion	3.91	0.77	-.15	.03	.02	.28**	(.88)	—				
6. Distributive justice	3.00	1.13	.01	-.11	-.12	.38***	.17	(.92)	—			
7. Procedural justice	3.35	0.77	.06	.01	-.10	.60***	.34***	.34***	(.85)	—		
8. Interactional justice	3.76	0.86	.03	.05	-.06	.57***	.31**	.33***	.40***	(.88)	—	
9. Social comparison orientation	3.04	0.65	.10	-.17	-.03	-.00	.14	.10	.05	-.05	(.77)	—
10. Antisocial work behaviors	1.30	0.43	.22*	-.04	.07	-.35***	-.36***	-.26**	-.17	-.40***	.12	(.80)

Note. $N = 103$. Cronbach's alphas are shown in parentheses along the diagonal. Work group structure coded 0 = low interdependence in off-site work groups, and 1 = high interdependence in on-site work groups.

* $p < .05$. ** $p < .01$. *** $p < .001$.

show that situational cues have a stronger impact on behavior among people who tend to frequently evaluate themselves in relation to others (Buunk et al., 2003; Buunk, Oldersma, et al., 2001; Buunk, Van der Zee, et al., 2001). Our study also supports recent findings by De Cremer and Sedikides (2005) showing that self-related uncertainty impacts the responsiveness to justice information.

Social comparison orientation moderated the impact of interactional fairness on antisocial work behaviors, but we did not find evidence of a similar relationship for procedural justice. A possible explanation for this null result is that people who experience chronic uncertainty about the self may be more motivated to search for fairness information in the interpersonal domain (i.e., interactional justice) rather than in the procedural one. That is, impressions about the fairness of an organization-level change procedure are not as useful for reducing uncertainty about people's abilities, opinions, and interpersonal relations as information conveyed by the treatment they receive from their supervisors. Consistent with this explanation, people high in social comparison orientation have been found to be particularly sensitive to others' behavior (Gib-

bons & Buunk, 1999). Our findings imply that as in other studies (e.g., Aquino et al., 1999) interactional justice perceptions may be stronger determinants of antisocial behaviors than are procedural or distributive justice perceptions.

The perceptions of procedural justice measured in our study had to do with specific perceptions about a change in organizational policy. Consequently, a second explanation for the null result is that respondents in our sample did not believe that the fairness of the enacted procedures associated with the organizational change information conveyed much information about their standing in the organization because it was not directly connected to others' evaluations of the self and its attributes. In contrast, interactional justice has more direct implications for how the self is perceived by others. A final reason why we found no interaction between procedural justice of change and social comparison orientation may have been that the statistical power to detect this interaction was small. Because our sample size was small and we simultaneously tested for two interactions, the absence of a significant interaction can be attributed to low power (Aiken & West, 1991; McClelland & Judd, 1993).

Table 2
Multilevel Estimates of the Effect of Interactional and Procedural Justice, Social Comparison Orientation, and Their Interaction on Antisocial Work Behaviors

Step	R^2	ΔR^2	LR χ^2 test	df	Variable	γ	95% confidence interval
1	.27	.27	25.72***	6	Intercept	1.14	.94, 1.33
					Work group structure	0.23*	.00, .46
					Employee age	-0.00	-.01, .01
					Employee tenure	0.00	-.01, .01
					Trust in organization	-0.10	-.21, .02
					Workgroup cohesion	-0.08	-.17, .01
					Distributive justice	-0.06	-.12, .01
2	.31	.04	10.56**	2	Procedural justice (PJ)	0.10	-.00, .20
					Interactional justice (IJ)	-0.12*	-.21, -.03
3	.32	.01	1.98	1	Social comparison orientation (SCO)	0.11*	.00, .21
4	.33	.01	0.43	1	PJ \times SCO	0.01	-.14, .15
5	.35	.02	4.02*	1	IJ \times SCO	-0.12*	-.24, -.00

Note. $N = 103$. Likelihood ratio (LR) tests and R^2 for Step 1 are based on a comparison with a null model (intercept only). ΔR^2 = increase in variance explained by each regression step; all proportions of variance explained were computed as the proportional reduction in the Level 1 variance component of antisocial work behavior scores (Snijders & Bosker, 1999).

* $p < .05$. ** $p < .01$. *** $p < .001$.



Figure 1. Interaction between interactional justice and social comparison orientation on antisocial work behaviors

Limitations

The study has a number of limitations that deserve comment. First, we used a cross-sectional design, which limits conclusions about causal relationships between study variables. However, because research in the uncertainty management tradition has been primarily experimental and has shown causal relationships between similar study variables, it seems reasonable to presume that the proposed relationships do in fact reflect a causal pattern. Second, because our study looked at a preponderant number of female employees from a specific industry, we do not know whether our results are generalizable across industries, professions, and genders. Having said this, we do not believe that the lack of men in our study represents a major threat to internal validity because previous research has failed to find consistent sex differences in social comparison orientation or justice perceptions. A third study limitation is that survey respondents tended to have longer tenure than nonrespondents in the focal organization. As with gender, we do not see this as invalidating the conclusions of our study because it is not clear how the nonrepresentativeness of our sample on tenure could provide an alternative explanation for the pattern of the interaction we found. In addition, there is no empirical indication in the research literature that tenure and interactional justice are related to one another (Cohen-Charash & Spector, 2001). Nevertheless, we note that we controlled for tenure in our analyses to adjust for potential tenure differences in antisocial work behaviors.

A methodological strength of our study is that we used multiple sources of data to assess our study hypotheses. Unlike previous studies on antisocial work behaviors, ours did not rely on self-reports. Rather, antisocial work behaviors were assessed through supervisory ratings, thereby minimizing common source bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Another methodological improvement of our study over past designs is that we tested implications of UMT in a field setting. Together, these features of our design should strengthen our conclusions about the validity of our empirical findings.

Implications for Theory and Future Research

This research has several implications for theory and empirical research in social comparison and justice judgments. First, it contributes to a growing body of evidence that social comparisons are not only a social process but also a product of differences in peoples' sensitivity to the behaviors of others and their motivation to reduce uncertainty (Gibbons & Buunk, 1999). The justice literature has primarily looked at justice as a social exchange-based construct (Konovsky & Pugh, 1994). According to this model, variations in justice directly and indirectly translate into variations in work behaviors. We suggest that this model fails to capture an important psychological function of justice, which is to reduce uncertainty. If justice serves this function, then people's reactions to injustice will differ according to the degree of uncertainty surrounding their justice-related experiences. Thus, main and mediated effect models linking justice perceptions to work behavior are incomplete, and future theories should also incorporate constructs that explain the conditions under which justice matters at all (Ambrose, 2002; Cropanzano, Byrne, Bobocel, & Rupp, 2001; Greenberg, 2001; Lind & Van den Bos, 2002).

Our results show that a chronic tendency to make social comparisons strengthens the impact of social cues on people's behaviors (Buunk et al., 2003; Buunk, Oldersma, et al., 2001; Buunk, Van der Zee, et al., 2001; Gibbons & Buunk, 1999). To date, social comparison research has looked at the impact of social context factors that promote the selection, comparison, and evaluation of social targets (Mussweiler, 2003). Our study complements this research by showing that employees who have a predisposition to compare themselves with others will react stronger to situational variations in justice. This may place some limits on what organizations can do to influence employee behavior through justice mechanisms.

If people differ in their motives to reduce social uncertainty, then variations in justice will have a greater impact on some people than on others. Understanding who these employees are likely to be and what may be done to minimize their feelings of uncertainty might therefore provide valuable insights into how managers might minimize the dysfunctional consequences of perceived injustice. Of course, a more appropriate way to minimize such consequences is to enact procedures and treat employees in ways that are just. We leave it for future studies to consider how other variables besides social comparison orientation might influence the experience of uncertainty and how they might affect the justice-work behavior relationship.

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Received May 11, 2005

Revision received September 8, 2005

Accepted October 17, 2005 ■